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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,824	03/31/2004	Kelvin P. Self	082380-00544	5032

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TOMLINSON & O'CONNELL, P.C.
TWO LEADERSHIP SQUARE
211 NORTH ROBINSON, SUITE 450
OKLAHOMA CITY, OK 73102

EXAMINER

STEPHENSON, DANIEL P

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/813,824	SELF ET AL.	
	Examiner	Art Unit	
	Daniel P. Stephenson	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-48 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5) ☐ Claim(s) ____ is/are allowed.

6) ☒ Claim(s) 1-12, 22-25, 28-33, 41-44 and 46-48 is/are rejected.

7) ☒ Claim(s) 13-21, 26, 27, 34-40 and 45 is/are objected to.

8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/16/04.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 41 line 16 the reference numerals "450" and "510" have both been used to designate "arm positioners".

Appropriate correction is required.

2. Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification/drawings do not disclose a steering assembly that is actuated between the steering and non-steering position by rotation of the shaft in addition to having an actuator supported by the frame adapted to exert a radial force on a borehole-engaging member when in the steering position.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 12, 22, 29-33, 41 and 48 are rejected under 35 U.S.C. 102(a) as being anticipated by the pre-grant publication '362 to Rankin et al. (hereafter Rankin et al. '362). Rankin et al. (fig. 6 and 9-13) discloses a guidable reamer assembly. It has a cutting member (322), a support member (310, a movable shaft (324) and a steering assembly (332). The steering assembly is

movable between a steering and non-steering position. This movement offsets the axis of the cutter from the axis of the support member. The support member supports the steering assembly. The cutting member is advanced through rotation. The assembly has a beacon (32) that senses the orientation of the deviation prior to the cutting member reaching the deviation.

5. Claims 1, 2, 7, 12, 22, 29-33, 41 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Webb et al. Webb et al. (fig. 40-45) discloses a guidable assembly. It has a cutting member (105), a support member (451), a movable shaft (101) and a steering assembly (223, 461). The steering assembly is movable between a steering and non-steering position in response to the movable shaft. The steering offsets the axis of the cutter from the axis of the support member. The support member supports the steering assembly. The cutting member is advanced through rotation. The assembly has a beacon (361, 371) that senses the orientation of the deviation prior to the cutting member reaching the deviation. The steering assembly is composed of outer (461) and inner (223) cams, which are both eccentric. The shaft is connected to the inner cam.

6. Claims 1-9, 12, 22-24, 29, 31-33, 41-43 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Comeau et al. Comeau et al. (fig. 2b, 3b, 4e, 4f) discloses a guidable assembly. It has a cutting member (22), a support member (88, 252), a movable shaft (24) and a steering assembly (92). The steering assembly is movable between a steering (fig. 3b) and non-steering (fig. 2b) position in response to the movable shaft. The steering offsets the axis of the cutter from the axis of the support member. The support member supports the steering assembly. The cutting member is advanced through rotation. The assembly has a beacon (361, 371) that senses the orientation of the deviation prior to the cutting member reaching the deviation. The

steering assembly is composed of outer (156) and inner (158) cams, which are both eccentric. The shaft is connected to the inner cam. The cams are supported in a housing (46). There is a clutch (184) operable in response to the movable shaft to fix the outer eccentric cam in position. The support member is radially extendable (252). There is a plurality of borehole engaging members (254, 268) designed to limit rotation of the support member. The borehole engaging members are actuated by a spring.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 10, 25 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comeau et al. Comeau et al. shows all the limitations of the claimed invention, except it does not disclose that a hydraulic cylinder actuates the borehole engaging members. It does disclose that the engaging members may be actuated by any method, mechanism structure or device (col. 45 lines 57-59). It is taken as Official Notice that a common method of actuation of an expandable member is a hydraulic cylinder. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a hydraulic cylinder to actuate the engaging members of Comeau et al. This would be done to have operator control over extension and retraction.

9. Claims 23, 24, 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al. '362 or Webb et al. in view of the pre-grant publication '598 to Rozendaal et al.

(hereafter Rozendaal et al '598). Rankin et al. '362 or Webb et al. shows all the limitations of the claimed invention, except it does not disclose that there is a plurality of borehole engaging members on the frame to limit rotation of the frame, nor does it disclose that the engaging members are actuated by an actuator. Rozendaal et al. '598 (fig. 1) discloses a support member with a frame and a plurality of support members (23) on the frame that limit rotation. These members are actuated with a spring (27). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the members and actuator of Rozendaal et al. '598 with the apparatus of Rankin et al. '362 or Webb et al. This would be done to limit rotation of the support as taught by Rozendaal et al. '598 (col. 4 lines 1-9)

10. Claims 23-25 and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al. '362 or Webb et al. in view of the pre-grant publication '598 to Anderson et al. Rankin et al. '362 shows all the limitations of the claimed invention, except it does not disclose that there is a plurality of borehole engaging members on the frame to limit rotation of the frame, nor does it disclose that the engaging members are actuated by an actuator. In addition, it does not disclose that the actuator is a hydraulic cylinder. Anderson et al. (fig. 1, 3 and 14-17) discloses a support member that is located on a frame with borehole engaging members (46, 170) that are hydraulically actuated and will limit rotation of the frame. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the members and actuator of Anderson et al. with the apparatus of Rankin et al. '362. This would be done to provide additional stabilization to the reamer.

11. Claims 28 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al. '362 in view of the pre-grant publication '428 to Wentworth et al. (hereafter Wentworth et

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al. '428). Rankin et al. '362 shows all the limitations of the claimed invention, except it does not disclose that the drill string has a housing with a beacon in it that is adapted to sense the orientation of the housing of the beacon. Wentworth et al. '428 (fig. 10) discloses a beacon (62) within a housing in the drill string that senses the orientation of the string. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sonde of Wentworth et al. '428 with the apparatus of Rankin et al. '362. This would be done to allow the orientation of the cutter to be transmitted further from the cutter to allow real-time changes to be made to the cutting direction.

12. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rozendaal et al. '598 in view of the German document '992 to Bergwerksverband GMBH (hereafter DE '992). Rozendaal et al. '598 discloses a rotary drive system and a drill string with a first and second end connected to the drive system. There is a guidable reamer assembly on the drill string that has a cutting member (19). It does not disclose that the drill string is made of an independent outer member and inner member and that the cutter moves in response to the inner member and a steering assembly moves in response to the outer member. DE '992 discloses a drill string with an inner member for rotating a cutter and an outer member for rotating a steering assembly (10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the string of DE '992 with the apparatus of Rozendaal et al. '598. This would be done to provide the backreamer of Rozendaal et al. '598 with a steering capability.

Allowable Subject Matter

13. Claims 13-21, 26, 27, 34-40 and 45 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Brotherton et al., Alft et al. '263, Van Houwelingen et al., Osadchuck, and the pre-grant publications to Payne et al. '467, Michael et al. '992 and Jin et al. '013 all show similar elements to the present invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel P. Stephenson whose telephone number is (571) 272-7035. The examiner can normally be reached on 8:30 - 5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on (571) 272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David Bagnell
Supervisory Patent Examiner
Art Unit 3672

DPS 